

ABSTRACTS OF CARDIOLOGY

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Increased Cerebrospinal Fluid Pressure and Papilloedema in Malignant Hypertension. R. D. TAYLOR, A. C. CORCORAN, and I. H. PAGE. *Arch. intern. Med.*, 93, 818-824, June, 1954.

The cause of papilloedema in hypertension is uncertain. It has been suggested that the level of the diastolic blood pressure is responsible, but this explanation is not universally accepted. The present authors measured the cerebrospinal fluid pressure (C.S.F.P.) in 200 hypertensive patients; 100 (49 men and 51 women, aged 19 to 65, average age 43) had hypertension without papilloedema and 100 (66 men and 34 women, aged 12 to 67, average age 43) had malignant hypertension with papilloedema.

The results were as follows. There was no relation between the level of the diastolic pressure and the C.S.F.P. in the 100 patients without papilloedema. In the 100 patients with papilloedema there was some relation statistically between the two, but not a close one, and there were many discrepancies—for example, 57 patients had a normal C.S.F.P.; of 16 patients with a C.S.F.P. exceeding 350 mm. H₂O, 14 had papilloedema and 2 had normal optic discs.

The authors conclude that there is no evidence of a causal relationship between papilloedema and the level of the diastolic blood pressure. *Arthur Willcox*

Treatment of Stokes-Adams Disease by External Electric Stimulation of the Heart. P. M. ZOLL, A. J. LINENTHAL, and L. R. NORMAN. *Circulation (N.Y.)*, 9, 482-493, April, 1954.

The authors, working at Harvard Medical School and Beth Israel Hospital, Boston, report the results of their use of an electrical stimulator (briefly described) placed over the præcordium in 14 cases of Stokes-Adams disease. The stimulus from the artificial pacemaker could be varied in strength and frequency, and was designed to overcome periods of extreme ventricular bradycardia or standstill in cases of complete auriculo-ventricular block. Electrocardiograms demonstrated the effectiveness of this external electrical stimulator in 13 of the 14 patients. Detailed cardiac histories are given of the 14 patients, of whom 10 eventually died, 8 from a Stokes-Adams attack.

Syncope due to ventricular standstill was terminated immediately. An effective circulation was maintained for periods of up to 4 days with continuous stimulation. In most cases idioventricular rhythm returned after withdrawal of the artificial stimulation, and one patient has had no further syncopal attacks for a year. The stimulator proved ineffective in ending attacks of persistent ventricular tachycardia, which proved fatal in 3 cases; it did, however, prevent the recurrence of such attacks during its application for ventricular standstill.

D. W. Barritt

Endocardial Fibroelastosis: a Factor in Heart Disease of Obscure Etiology. A Study of 20 Autopsied Cases in Children and Adults. W. A. THOMAS, R. V. RANDALL, E. F. BLAND, and B. CASTLEMAN. *New Engl. J. Med.*, 251, 327-338.

The authors, reviewing the post-mortem reports of all cases of heart disease of obscure ætiology out of 10,000 cases coming to necropsy at the Massachusetts General Hospital in the past 25 years, have differentiated a group of 20 cases of chronic heart disease with hypertrophy of uncertain ætiology and extensive fibroelastic thickening of endocardium and subendocardium. These they divided arbitrarily into three subgroups: infantile, childhood (2 to 16 years), and adult cases.

In the 4 infantile cases the patient had had symptoms for some months before death. There was marked cardiac hypertrophy with endocardial fibroelastosis overlying a relatively normal myocardium, but no evidence of any inflammation or thrombosis. The authors postulate that in these cases the ætiology was congenital. In the childhood group, also of 4 cases, the findings were similar except for later onset of symptoms and slighter degree of hypertrophy, and it is considered that these also were congenital in origin.

The 12 adult cases were morphologically similar to the other types of case, but in 9 of them mural thrombi were present. There was no gross myocardial fibrosis or evidence of inflammation. The history was longer than in the younger groups, congestive failure was prominent, and some patients had a family history of obscure heart disease. The authors discuss the ætiology of this type of heart disease and conclude that despite the lack of specificity of the fibroelastosis and the late onset of symptoms, it too is congenital in origin. The relationship between the pathological changes and symptoms is also discussed and comparisons are made with other obscure heart diseases. *D. Goldman*

Control of Blood-pressure by Combined Action of Reserpine and Pentapyrrolidinium. F. H. SMIRK, A. E. DOYLE, and E. G. MCQUEEN. *Lancet*, 2, 159-162, July 24, 1954.

The authors describe the results of the treatment of 37 hypertensive patients with a combination of reserpine, an alkaloid from *Rauwolfia serpentina*, and pentapyrrolidinium, a methonium compound, both given by mouth. Reserpine was given first, up to a maximum dose of 0.5 mg. thrice daily, the aim being to give the highest dose which the patient could tolerate without discomfort. Pentapyrrolidinium was given in an initial dose of 20 mg. repeated after 12 hours, and then increased by 20-mg. increments according to the reactions of the patient until a maintenance dose ranging from 60 to 700 mg. twice daily was reached. As an emergency measure, for example in cases of hypertensive heart

failure or malignant hypertension, the drugs were given simultaneously.

It was found that, as compared with pentapyrrolidinium alone, the combined therapy allowed the blood pressure to be stabilized at a lower level and with less fluctuation, and the side-effects, such as dryness of mouth, constipation, and postural faintness, were diminished. It has been the authors' experience that treatment with blood-pressure-reducing agents reduces the incidence of hypertensive heart failure and lessens the need for digitalis and mersalyl. However, cerebral vascular accidents are still frequent, and many of these appear to be due to sudden rises in blood pressure, especially following unauthorized interruption of drug treatment.

K. G. Lowe

La Valvola Mitrale. M. A. CHIECHI and C. P. BAILEY, Rome: Il Pensiero Scientifico, 1955. Pp. 531. Bibliography. 38 plates. Price 5000 lire.

This book is based on the findings in 753 patients with mitral valve disease, most of whom were submitted to surgery. The anatomy of normal and abnormal mitral valves has been studied in detail by Chiechi. In particular, attention is drawn to small intermediate cusps which are frequently present between the main leaflets. The posterior intermediate cusp was absent in 37 per cent of normals, and this may have some bearing on the occurrence of mitral incompetence. Other factors considered to favour incompetence are irregular distribution of scarring in the valve and the downward dislocation of the posterior cusp which results from atrophy of the inflow tract of the left ventricle.

The section on clinical diagnosis is very brief and not up to the standard of the rest of the book. Correlation of preoperative assessment with operative findings was closest (89%) in cases considered to have pure stenosis; when co-existent incompetence was diagnosed operative confirmation was obtained in only 45 per cent.

One somewhat unusual view expressed is that patients who exhibit less than a 20 per cent rise in pulmonary "capillary" pressure are unsuitable because of irreversible changes in the pulmonary vascular bed. Operative technique is described in great detail. Of 291 cases followed subsequently for from one to five years, the results were regarded as excellent in 54 per cent and satisfactory in 36 per cent.

This book is detailed and largely accurate, clearly written and well illustrated. It would be improved by the provision of a proper index and by correction of errors in spelling and dates in the bibliography.

D. Weitzman

Inositol and Mannitol Hexanitrates in Hypertension Management. L. M. BERNSTEIN and A. C. IVY. *Circulation (N.Y.)*, 12, 353-360, Sept., 1955.

The effects of inositol hexanitate (10-mg. tablets), of mannitol hexanitate (30-mg. tablets), and of a placebo in lowering the blood pressure were compared in 32 ambulatory out-patients with hypertension, the average blood pressure being 197/111 mm. Hg. The various tablets, which were of identical appearance, were given for 2-week periods in rotation and the blood pressure

was measured at the end of each period. The dose of the drugs was increased as the trial proceeded by increasing the number of tablets. Small doses of the hexanitrates (4 to 6 tablets 4 times a day) were without effect, but larger doses (9 to 12 tablets 4 times a day) resulted in small (up to 8 mm. Hg) but statistically significant falls in the systolic and diastolic blood pressures. The authors attribute the absence of effect of the small doses of the hexanitrates to the development of tolerance, and additional studies on 15 patients showed that tolerance developed in 8 days on the average and was lost within 10 days of discontinuing the drugs. They suggest that these findings should be borne in mind when evaluating or using organic hexanitrates in the management of hypertension, and that it is important to adjust the dose to the tolerance of the individual patient.

W. J. H. Butterfield

Molar Sodium Lactate. Its Effect in Complete Atrio-ventricular Heart Block and Cardiac Arrest Occurring during Stokes-Adams Seizures and in the Terminal State. S. BELLET, F. WASSERMAN, and J. I. BRODY. *New Engl. J. Med.*, 253, 891-900, Nov. 24, 1955.

The authors now present a further report, illustrated with case histories, on the effect of a molar solution of sodium lactate upon the ventricular rate and conduction in patients with various types of heart block. In total heart block 120 to 150 ml. of molar sodium lactate given intravenously over the course of 10 to 15 minutes produced an increase in pulse rate by some 5 to 10 beats per minute in 10 out of 12 cases. The electrocardiogram occasionally showed ventricular extrasystoles while the infusion was being given, or transient changes in QRS configuration and prolongation of S-T as in alkalosis. The effect on the pulse rate passed off in an hour or two; a more sustained effect could be achieved, however, by the oral administration of 90 ml. of the solution every 4 hours.

In cases of hyperkalæmia with bradycardia, intra-ventricular conduction defect, bouts of ventricular fibrillation, and hypotension lactate solution appeared to act immediately in suppressing the arrhythmia and improving ventricular conduction and rate, and the serum potassium level also fell. Similar beneficial effects were noted in the suppression of Stokes-Adams attacks (3 cases) associated with frequent periods of ventricular asystole or fibrillation. In 12 cases of terminal cardiac arrest with disturbances of ventricular conduction and rhythm the heart beat was restored in a few, though only temporarily.

J. A. Cosh

The Results of Valvotomy for Aortic Stenosis. C. G. BAKER and M. CAMPBELL. *Lancet*, 1, 171-175, Jan. 28, 1956.

The operation of aortic valvotomy carries with it the danger of producing incompetence if a calcified and deformed valve is split. This danger should not be so great in the case of congenital stenosis. In this paper the authors discuss the results obtained at Guy's Hospital, London, in 16 patients who had predominant aortic stenosis sometimes with slight incompetence.

The patients' average age was 46, though 2 were children with congenital stenosis. The predominant symptoms were syncopal attacks and anginal pain, both of which occurred in many cases. The size of the heart was not abnormally great and the electrocardiogram showed evidence of marked left ventricular strain. Dyspnoea and cardiac asthma in some cases suggested left ventricular failure.

There were 6 operative deaths. Of the survivors, 5 were greatly improved as a result of the operation and a further 5 obtained some benefit, but 2 of these died at a later date. These results in cases of pure aortic stenosis are not so satisfactory as those obtained in cases of associated mitral and aortic disease. But it is noted that many of the patients were operated on at a late stage of their disease.

T. Holmes Sellors

Left Axis Deviation in Tricuspid Atresia and Single Ventricle. The Electrocardiogram in 36 Autopsied Cases. C. A. NEILL and A. J. BRINK. *Circulation* (N. Y.), 12, 612-619, Oct., 1955.

In this further communication from the Johns Hopkins Hospital, Baltimore, the electrocardiographic and necropsy findings in 28 selected cases of tricuspid atresia and 8 of single ventricle with left axis deviation are analysed.

Evidence of left axis deviation was present in 24 of the cases of tricuspid atresia, while in 20 of the 21 cases in which tracings from præcordial leads were taken they showed signs of left ventricular preponderance. Tracings from these leads were available in 7 cases of single ventricle, in 3 of which there were large equiphasic QRS complexes in V1 to V5, while one showed right ventricular preponderance; left ventricular preponderance was found in the remaining three.

Electrocardiographic evidence of right atrial hypertrophy was present in 23 cases of tricuspid atresia and in 4 of single ventricle. In tricuspid atresia, but not in single ventricle, a correlation was found between the form of the P wave and the size of the interatrial communication as revealed at necropsy.

T. Semple

Patent Ductus Arteriosus with Pulmonary Hypertension. I. M. ANDERSON and H. M. T. COLES. *Thorax*, 10, 338-347, Dec., 1955.

The authors review the cases of 9 children aged 1 to 6 years who were diagnosed clinically at the Westminster Hospital, London, as having a patent ductus arteriosus with pulmonary hypertension. Catheterization was repeated after ligation of the ductus in 6 cases, in all of which the pulmonary arterial pressure was found to be normal.

With the exception of one child who died 4 weeks after operation, all the patients showed striking clinical improvement. The child who died was shown to have had a reversed shunt through the ductus, and at necropsy a severe degree of atherosclerosis in the smaller pulmonary vessels and gross hypertrophy of the main pulmonary trunk were found. There was associated stenosis of the aortic and mitral valves. The authors consider that cardiac catheterization is indicated whenever well-marked pulmonary arterial dilatation, enlarge-

ment of both ventricles, and increased pulsation of the smaller pulmonary vessels are found on fluoroscopy in a child with the clinical features mentioned above. A precise diagnosis made in this way will enable operative treatment of the ductus to be carried out before irreversible changes occur.

A. M. Macarthur

Patent Ductus Arteriosus with Pulmonary Hypertension. An Analysis of Cases Treated Surgically. F. H. ELLIS, J. W. KIRKLIN, J. A. CALLAHAN, and E. H. WOOD. *J. thorac. Surg.*, 31, 268-285, March, 1956.

Since there is a good deal of uncertainty regarding the selection for surgical treatment of patients with patent ductus arteriosus (P.D.A.) associated with pulmonary hypertension, a total of 72 reported cases of P.D.A. with pulmonary hypertension were first reviewed. In this series operative closure of the ductus carried an over-all mortality of 18 per cent (13 deaths), but in the 16 patients with a right-to-left shunt the rate was 56 per cent (9 deaths).

The authors then consider in some detail 30 out of 272 cases of P.D.A. operated on at the Mayo Clinic up to April, 1955, in which cardiac catheterization before operation showed a pulmonary arterial pressure higher than 60 mm. Hg. The ages of the patients ranged from 2 months to 59 years, but half of them were under 15 years. A right-to-left shunt was demonstrated in 14 cases, but had undoubtedly been present at some time in several others. Of the 30 patients, 5 died as a result of operation (mortality 17%) and there were 2 later deaths; all the deaths occurred in patients with a right-to-left shunt, representing a mortality of 50 per cent in this type of case. Of the 23 survivors, 20 are well. Recanalization occurred in 3 patients, 2 of whom are well, and one is included in the late deaths. A satisfactory reduction in pulmonary arterial pressure was noted in 9 out of 12 patients in whom closure of the ductus was successful, as shown by re-catheterization in the postoperative period. This satisfactory response included 3 cases in which a right-to-left shunt had been demonstrated before operation.

The authors conclude that all cases of P.D.A. with left-to-right shunt should be treated by operation, but that closure should not be carried out in those with a predominantly right-to-left shunt, or in those in whom the pulmonary arterial pressure rises and the systemic pressure falls when the ductus is occluded on the operating table. Patients with P.D.A. resulting in pulmonary hypertension usually have a short wide ductus; the ligation of such a ductus is unsatisfactory, the recurrence rate being high, and division is the only method to ensure success.

F. J. Sambrook Gowar

The Surgery of Patent Ductus Arteriosus. A Report of the Section on Cardiovascular Surgery. D. H. WATERMAN, P. C. SAMSON, and C. P. BAILEY. *Dis. Chest*, 29, 102-108, Jan., 1956.

At the request of the American College of Chest Physicians the authors have collected and analysed the results of 3896 operations for patent ductus arteriosus performed by 49 surgeons in various parts of the United States and abroad. Of the patients concerned, 2929

were children and 967 were adults. Of the former, 69 per cent were symptom-free before operation, 27 per cent showed signs of myocardial insufficiency, and infection was present in 4 per cent, whereas only 48 per cent of the adults were symptomless, 41 per cent having myocardial insufficiency and 11 per cent being infected. The operative mortality in the younger group was 2.3 per cent and in the adult group 5.5 per cent.

Nearly 60 per cent of the surgeons practised division of the ductus, as opposed to ligation. The initial mortality rates were practically identical for both types of operation in both children and adults. The majority of the collaborating surgeons favoured ductal interruption in the presence of pulmonary hypertension up to a pressure of 90 mm. Hg systolic. For patients in whom there was reversal of the shunt almost all the surgeons considered that operation should not be advised, but a small minority (8) were prepared to explore and determine the effect of temporary occlusion of the duct; if this resulted in a fall in pulmonary arterial pressure, then they considered that the duct should be permanently interrupted, but not otherwise.

A rather surprising finding was the incidence of aneurysms, which among 1043 cases reported by 17 surgeons was as follows: 8 of the ductus, 35 of the pulmonary artery, and 31 of the aorta—an over-all incidence of 7 per cent.

[It is to be regretted that the authors make no mention of recanalization, particularly in relation to the question of ligation or division, since it was on this score that surgical division as opposed to ligation was originally recommended.]

W. P. Cleland

Ventricular Septal Defects with Pulmonary Hypertension.

J. W. DUSHANE, J. W. KIRKLIN, R. T. PATRICK, D. E. DONALD, H. R. TERRY, H. B. BURCHELL, and E. H. WOOD. *J. Amer. med. Ass.*, 160, 950-953, March 17, 1956.

The authors report from the Mayo Clinic the results in 20 cases of ventricular septal defect in 3 of which the defect was closed by direct suture and in 17 by insertion, at open cardiectomy, of a non-absorbable polyvinyl sponge prosthesis. Preoperative cardiac catheterization indicated large arterio-venous shunts and, in most cases, pulmonary arterial pressures close to the systemic arterial pressure.

There were 4 postoperative deaths, 3 being among the first 7 cases but only one among the next 13; the cause of death was pulmonary complications, associated in one case with complete atrio-ventricular dissociation. Interference with the conduction mechanism occurred in 9 cases, 6 showing right bundle-branch block. The presence of left ventricular hypertrophy as well as right ventricular hypertrophy gave a more favourable prognosis. The 16 survivors have improved, with loss of the arterio-venous shunt.

J. Robertson Sinton

Direct-vision Suture of Interatrial Septal Defect during Hypothermia. H. SWAN, S. G. BLOUNT, and R. W. VIRTUE. *Surgery*, 38, 858-871, Nov., 1955.

This article from the University of Colorado School of Medicine, Denver, is concerned with the surgical treat-

ment of atrial septal defects, and provides a review of the authors' opinions concerning the various methods of closure available and of their experience with suture under direct vision with hypothermia in 29 cases.

Of the 29 patients operated upon, 3 had pure septum primum lesions, 21 pure septum secundum lesions, and 5 had multiple defects; 14 were less than 15 years old and 6 were over 30. Pulmonary vascular resistance did not appear to be related to age, although the size of the heart was greatly enlarged in all those over 30 years of age. Six of the patients have died, including 2 of the 3 with septum primum defects. Postoperative cardiac catheterization was carried out on 21 of the survivors and indicated complete closure in all but 2 instances. Of the 6 deaths, 3 were due to ventricular fibrillation, one to hæmorrhage, and the remaining 2 to progressive thrombosis of the pulmonary arteries. Only 3 of the deaths could be in any way attributed to hypothermia, and 2 of these occurred in cases of the septum-primum type.

These results are very encouraging, and suggest that hypothermia provides an effective and practicable method of dealing with the problem of the closure of atrial septal defects.

W. P. Cleland

A Controlled Study of the Effect of Intermittent Heparin Therapy on the Course of Human Coronary Atherosclerosis. H. ENGLEBERG, R. KUHN, and M. STEINMAN. *Circulation (N.Y.)*, 13, 489-498, April, 1956.

The effect of prolonged, intermittent administration of heparin in patients who had had an attack of myocardial infarction more than 3 months before was studied at the Cedars of Lebanon Hospital, Los Angeles. Over 200 such patients were divided into two comparable groups, one of which received 200 mg. of concentrated aqueous solution of heparin subcutaneously twice a week, and one was given isotonic saline injections in a similar manner. The progress of the underlying atherosclerotic process was assessed from such factors as death from cardiovascular disease, recurrence of cardiac infarction, gangrene of a limb necessitating amputation, and cerebral vascular accidents, excluding those occurring during the first month of treatment.

Over a period of 2 years there were 18 non-fatal recurrences and 21 deaths from cardiovascular disease in the control group, compared with 5 non-fatal recurrences and 4 deaths from heart disease in the heparin-treated group, the difference being statistically significant ($p < 0.01$). Symptomatic improvement was also noted in the heparin-treated group. In the course of over 17,000 injections of heparin there were only 3 instances of major hæmorrhage.

Lipoprotein values were determined in a few cases only, but from these it appears that in a minority of patients there is a sustained reduction in the average level of low density lipoproteins, while in the majority there is only a temporary decrease following each injection. The results were considered to depend on this effect and on the physiological role of heparin in the serum transport phase of fat metabolism rather than on intermittent anticoagulation.

R. S. Stevens

Total Anomalous Pulmonary Return. An Analysis of Thirty Cases. V. L. GOTT, R. G. LESTER, C. W. LILLEHEI, and R. L. VARCO. *Circulation (N.Y.)*, 13, 543-552, April, 1956.

The authors present a detailed analysis of 30 cases of total anomalous pulmonary venous return to the heart in infants. In 23 cases the diagnosis was confirmed at necropsy, in 3 at operation, and in 4 cases it was accepted after thorough clinical evaluation; 17 patients were male and 13 female. Of the 23 cases examined post mortem, 13 were found to have associated patent foramen ovale, 4 patent foramen ovale together with patent ductus arteriosus, and 6 had multiple major defects. Most of the patients failed to survive the first 3 months of life, but the 7 still living are all past infancy and one is a 33-year-old woman with two children.

Pulmonary venous drainage was into the left innominate vein and thence to a right superior vena cava (a route mistakenly called "persistent left superior vena cava" by some authors) in 7 cases, into the coronary sinus in 4, into the right atrium in 4, the inferior vena cava in 2, the right superior vena cava in 2, and into the portal vein, the coronary sinus and left innominate vein, the inferior vena cava and left innominate vein, the abdominal visceral veins, and the anterior cardinal veins in one case each; in 2 cases the route of drainage was not fully demonstrated. Cardiac catheterization, performed in 13 cases, showed the striking feature of high oxygen saturation in the right atrium, this being equal to or higher than that in the systemic arterial blood. Pulmonary hypertension was common, as was also electrocardiographic evidence of right ventricular hypertrophy; only one patient had right bundle-branch block. On radiological examination only 3 cases showed the well-known "figure-of-eight" appearance formed by the engorged superior vena cava and the heart; in the postero-anterior position 12 showed a square-shaped heart due to massive enlargement of right atrium and right ventricle, which the authors believe to be characteristic. There was increased pulmonary vascularity, which became very marked after the first few months of infancy. Of the 6 patients subjected to surgery, 3 survived partial or totally corrective procedures.

K. G. Lowe

Direct Vision Intracardiac Surgery in Man Using a Simple, Disposable Artificial Oxygenator. C. W. LILLEHEI, R. A. DEWALL, R. C. READ, H. E. WARDEN, and R. L. VARCO. *Dis. Chest*, 29, 1-8, Jan., 1956.

The authors describe in simple terms the "bubble oxygenator" which they have developed and used clinically at the Heart Hospital (University of Minnesota), Minneapolis, whereby the patient's blood is efficiently oxygenated extracorporeally. They state that their former cross-circulation technique for open operations on the heart has now been replaced entirely by the new oxygenator. In essence the apparatus (which is clearly illustrated in a photograph) consists of a length of wide-bore plastic tubing in the shape of an inverted U through which blood is slowly pumped, while 100 per cent oxygen is introduced directly into the moving column through a series of hypodermic needles. Frothing is largely eliminated by contact with a potent, non-toxic, silicone

anti-foaming agent. As the blood descends to a settling tube on the distal side bubbles of excess oxygen, together with carbon dioxide, rise to the surface and escape. The apparatus is simple and easily replaceable, and it is claimed that contact with the plastic does not damage the blood cells or affect the clotting mechanism as is the case with glass. The patients are given heparin in doses of 1.5 mg. per kg. body weight, and all replacement blood is similarly heparinized. A rate of flow varying from 172 to 600 ml. per minute was obtained in the cases described.

Details are given of 7 patients, all children, on whom open cardiac operation for septal defect was carried out. In these patients the length of time the heart was open varied from 8½ to 18 minutes. In an addendum the authors state that 36 patients aged from 16 weeks to 21 years have since been operated on with the aid of the oxygenator, the maximum "by-pass" time in this group being 50 minutes.

W. P. Cleland

De-epicardialization: a Simple, Effective Surgical Treatment for Angina Pectoris. D. E. HARKEN, H. BLACK, J. F. DICKSON, and H. E. WILSON. *Circulation (N.Y.)*, 12, 955-962, Dec., 1955.

The authors review the various methods that have been suggested for the treatment of angina pectoris by increasing the vascular supply to the myocardium and the experimental work that has been done in this connexion. They point out that the degree of success achieved with each of these methods has been remarkably constant, and conclude that increase in the intrinsic coronary flow rather than the provision of an external collateral blood supply is the most important factor, whatever the operation.

Prompted by the work of Burchell, which suggested that the epicardium is the chief barrier to vascularization of the myocardium from extrinsic sources, they have carried out experiments on dogs, to determine the safest and most effective method of removing it. Finding that the application of 95 per cent phenol was satisfactory in that it destroyed the epicardium without increasing the irritability of the heart, they have now applied this finding to the clinical field in 18 cases of severe angina. There was no operative mortality, but 2 patients who had been relieved of pain died 2 months after operation from recurrent coronary infarction. In all but 2 of the remaining cases there was complete relief of pain. The authors consider that the results so far obtained justify the further application of this procedure for the relief of intractable anginal pain.

J. R. Belcher

Staphylococcal Infection following Cardiac Surgery. H. A. FLEMING and R. M. E. SEAL. *Thorax*, 10, 327-337, Dec., 1955.

The authors draw attention to the incidence of staphylococcal septicæmia and local staphylococcal infections following cardiac surgery and give clinical details of 9 such cases encountered at Sully Hospital, Glamorgan. In 7 the complication followed mitral valvotomy and in 2 ligation of a patent ductus arteriosus. In 3 of the cases the infection was due to the "non-pathogenic,"

coagulase-negative variety of staphylococcus. The diagnosis in the early stages may be difficult as this post-operative endocarditis does not produce the usual clinical picture. Five of these patients developed signs of pulmonary infarction which distracted attention from the underlying septicæmia. The 2 cases in which infection occurred after ligation of the ductus arteriosus were diagnosed by the occurrence of hæmoptysis and the appearance of a new radiographic shadow at the operation site owing to the development of a false aneurysm. The patient with a localized myocardial abscess, who died suddenly, was previously in apparently good health.

It is suggested that the development of this condition is due to the opportunity for infection provided by endocardial trauma. In a study of the staphylococcal population present in an operating theatre and its personnel during the performance of mitral valvotomy it was found that by the time the crucial point of the operation was reached all gloves, suture material, and packs were heavily contaminated. *A. M. Macarthur*

Basal Horizontal Lines on Chest Radiographs. Significance in Heart-disease. R. E. ROSSALL and A. J. GUNNING. *Lancet*, 1, 604-606, May 5, 1956.

A study was undertaken at the General Infirmary at Leeds to discover whether any relationship existed between the occurrence of the short horizontal, peripheral basal lines seen on chest radiographs and either the left auricular or pulmonary arterial pressure. The series comprised 100 patients with mitral valve disease and 16 with pulmonary hypertension arising from other causes.

The authors conclude: (1) basal horizontal lines on the chest radiographs of patients with mitral disease are accompanied by a raised left atrial pressure; (2) lines invariably appear when the mean left atrial pressure exceeds 24 mm. Hg; and (3) elevation of the pulmonary arterial pressure alone appears to play little part in the production of lines. They further suggest that the factor responsible for the lines is a rise in pulmonary capillary venous pressure to a level exceeding the colloid osmotic pressure of the plasma proteins; this they regard as indirect evidence for the view that the anatomical basis of the lines is an increase in the bulk of the interalveolar septa. *Sydney J. Hinds*

The Long-term Use of the Oral Diuretic 3-Chloromercuri-2-methoxy-propylurea (Neohydrin) in Ambulatory Patients. J. M. EVANS and R. A. MASSUMI. *Ann. intern. Med.*, 44, 124-132, Jan., 1956.

The authors report, from Washington, D.C., the results of a long-term clinical trial of the oral diuretic "neohydrin" on 40 patients, of whom 38 had congestive heart failure and 2 had chronic renal disease. Parenteral mercurial diuretics were successfully replaced by neohydrin (given in tablets each equivalent to 10 mg. of mercury) for periods of 8 to 84 weeks (average 38.6 weeks); effective maintenance doses ranged from 2 to 6 tablets a day.

Two patients, with poor oral hygiene, developed gingivitis. In 5 cases the diuretic control was unsatisfactory, and in 9 the drug had to be withdrawn because

of side-effects (dermatitis, abdominal pain, bloody diarrhoea, and stomatitis) after periods ranging from 3 days to 29 weeks. The authors conclude that neohydrin is an effective and reasonably safe oral diuretic.

W. J. H. Butterfield

The Function and Structure of the Arteries as Related to Age. An Anglo-chemical Study. G. HEVELKE. *Angiology*, 7, 39-54, Feb., 1956.

The relationship between function and chemical composition of the arteries was studied at Leipzig University, 10-cm. lengths of the brachial and femoral arteries from 96 subjects being examined post mortem. The arteries showed a progressive increase in weight with age, the brachial artery doubling in weight from the third to the eighth decade while the weight of the femoral artery increased rather more. These increases occurred in spite of a fall in dry weight, attributed by the author to the accumulation of a water-rich mucoid substance. The calcium, cholesterol, and ash contents of the two arteries increased slowly until the fifth decade, after which the values for the femoral artery rose much more steeply than those for the brachial artery. For example, in the first decade of life the cholesterol content of the brachial artery per 100 g. wet weight was 126 mg. and of the femoral artery 124 mg.; in the fifth decade the figures were 217 and 246 mg., and in the eighth decade 256 and 648 mg.

The chemical composition of the right artery was compared with that of the left in 52 subjects. Up to the age of 40 years differences were insignificant, but between 40 and 80 years the right artery weighed more and contained more ash, cholesterol, and calcium than the left. In 52 diabetics aged 20 to 80 years there was an increase in all values. For example, between 20 and 40 years of age the right femoral artery in diabetics weighed twice as much and contained three times as much ash and cholesterol and six times as much calcium per unit wet weight as did the normal artery.

M. C. Berenbaum

Diagnosis and Treatment of Vascular Disorders (Angiology). Edited by Saul S. Samuels, London. Ballière, Tindall & Cox. 1956. £6 8s.

This book is written by a large number of contributors, and consists of a series of essays on various aspects of peripheral vascular disease; much useful information is given, including extensive bibliographies. In some of these, as in the material included in the text, there could perhaps have been better selection, and multiple authorship sometimes results in an unfortunate allocation of space to different subjects. Aortic and iliac obstruction deserve greater mention, also the clinical localization of the site of an arterial obstruction, which is now well established. The place of arterial grafting, in the treatment of occlusive arterial disease, must obviously be more fully considered in another edition. These are, however, minor criticisms of a valuable book, which embodies the opinions of various physicians and surgeons on widely different aspects of the subject. The illustrations, particularly the reproductions of arteriograms, are excellent. *Lawson McDonald*